which we ſee in ſwimming, &c.) And I have never found it lower than in high Winds. *

I have divers times, upon diſcerning my Quickſilver to fall without any viſible cauſe at home, looked abroads and found (by the appearance of broken Clouds, or otherwiſe) that it had rained not far off, though not with us: Whereupon, the Air being then lightened, our heavier Air (where it rained not) may have, in part, diſcharged it ſelf on that lighter.

**The Author of theſe Obſervations intends hereafter more particularly to obſerve, from what points thoſe Winds blow, that make the Quickſilver thus ſubſide.*

A more particular Account of thoſe Obſervations about Jupiter, *that were mentioned in* Numb. 8.

Since the publiſhing of *Numb.* 8. of theſe *Tranſactions*, where, among other particulars, ſome ſhort Obſervations were ſet down touching both the *Shadow* of one of *Jupiter*'s *Satellits*, paſſing over his Body, and that *Permanent Spot*, which manifeſts the Converſion of that Planet about his own *Axis*; there is come to hand an *Extract* of that Letter, which was written from *Rome*, about thoſe Diſcoveries, containing an ample and particular Relation of them, as they were made by the Learned *Caſſini*, Profeſſor of *Aſtronomy* in the Univerſity of *Bononia*. That *Extract*, as it is found in the *French Journal des Scavans* of *Febr.* 22. 1666. we thus *Engliſh*.

Monſieur *Caſſini*, after he had diſcovered (by the means of thoſe Excellent Glaſſes of 50. *palmes*, or 35. *feet*, made by M. *Campani*) the *Shadows*, caſt by the 4 Moons or *Satellits* of *Jupiter* upon his Diske, when they happen to be between the Sun and Him; after he had alſo diſtinguiſhed their Bodies *upon* the Diske of *Jupiter*; made the laſt year ſome Prædictions for the Months of *Auguſt* and *September*, noting the dayes and hours, when the Bodies of the ſaid *Satellits* and their *Shadows* ſhould appear upon *Jupiter*, to the end that the Curious might be convinced of this matter by their own Obſervations.

Some of theſe Prædictions have been verified not only at *Rome*, and in other places of *Italy*, but alſo at *Paris* by M. *Auzout*, the moſt Celebrated and the moſt Exact of our *Aſtronomers*; and in *Holland*, by M. *Hugens*. And we can now doubt no longer, of the rotation of the *Satellits* about *Jupiter*, as the Moon turns about the Earth; nor believe, that *Jupiter* or his *Attendants* have any other Light, than that, which they receive from the Sun; as ſome did aſ-

ſure before theſe Obſervations. There remained to find by Experience, whether *Jupiter* did turn about his *Axis*, as many believe, that the *Earth* turns about her's. And although moſt *Aſtronomers* had conjectur'd, it did ſo, either by this Analogy, or by other Congruities, yet it was much wiſh'd, that we might be aſſured thereof by Obſervations. And this it is, for which we are obliged to M. *Caſſini*, who, having by the advantage of the ſame Glaſſes diſcover'd ſeveral changes, as well in the three obſcure *Belts*, commonly ſeen in *Jupiter*, as in the reſt of his *Diske*, and having alſo obſerved Spots in the midſt of that *Planet*, and ſometimes *Brightneſſes*, ſuch as have bin formerly ſeen in the *Sun*, hath at length diſcover'd a *Permanent Spot* in the *Northern* part of the moſt *Southern* Belt; by the means whereof, he hath concluded, that *Jupiter* turns about his *Axis* in 9. dayes, 56. minutes, and makes 29. whole circumvolutions in 12. dayes 4. minutes of ours, and 360. in 149. dayes. For he has found, that this *Spot* was not cauſed by the Shadow of any *Satellit*, as well by reaſon of its Situation, as becauſe it appeared, when there could be no Shadow. Beſides, that its motion differed from that of the Shadows, which is almoſt equal, as well towards the Edges as towards the Middle of *Jupiter*: Whereas, on the contrary, this *Spot* hath all the accidents, that muſt happen to a thing, which is upon the ſurface of a round Body moving; for example, to move much more ſlowly towards the Edges, than towards the Middle, and to paſs over that part, which is in the middle of the Diske, equal to the half of the *Diameter*, in the ſixth part of the time, it takes to make the whole revolution: he having ſeen this half paſs'd over, in 99 or 100 minutes juſt, as it muſt happen, ſuppoſing the whole circumrotation is made in 9. hours 56. minutes.

He hath not yet been able to determine the Situation of the *Axis*, upon which this motion is made, becauſe the *Belts*, according to which it is made, have for ſome years appeared ſtreight, though in the precedent years, other *Aſtronomers* have ſeen them a little crooked: Which ſheweth, that the *Axis* of the diurnal motion of *Jupiter* is a little inclined to the plain of the *Ecliptick*. But in time we may diſcover, what certainty there is in this matter.

After this excellent Diſcovery, he hath calculated many *Tables*, whereof he gives the Explication and Uſe in the Letters by him addreſſed to the Abbot *Falconieri*. By the means of them, one may know, *when* this *Spot* may be ſeen by us: For, having firſt conſidered

Theſe Tables *are not yet ſent over, but, 'tis hoped, will be, ere long.*

ſidered it in relation to the *Sun*, in reſpect whereof, its motion is regular, he conſiders the ſame in relation to the *Earth*, where *We* obſerve it; and ſhews by the means of his *Tables*, what is to be added or ſubſtracted, to know, at what time the ſaid *Spot* is to come into the middle of *Jupiter*'s Diske, according as he is Oriental or Occidental. He hath alſo conſidered it in relation to an unmovable point, which he has ſuppoſed to be the firſt point of *Aries*, becauſe we thither refer here upon Earth the beginning of all the Celeſtial motions, and *there* is the *Primum mobile*, that one would imagine, if we were in *Jupiter*, as we do here imagine Ours of 24. hours.

The Diſcovery is one of the beſt, that have been yet made in the Heavens; and thoſe, that hold the Motion of the earth, find in it a full Analogy. For, *Jupiter* turning about the Sun, does nevertheleſs turn about his *Axis*; and although he be much bigger than the Earth, he does nevertheleſs turn much more ſwiftly than it, ſince he makes more than two Turns, and a third part, for its one; and carries with him 4. Moons, as the Earth does one.

This Obſervation ought to excite all Curious perſons to endeavour the perfecting of *Optick Glaſſes*, to the end that it may be diſcovered, whether the other *Planets*, as *Mars*, *Venus* and *Mercury*, about whom no Moon hath as yet been diſcovered, do yet turn about their *Axes*, and in how much time they do ſo; eſpecially *Mars*, in whom ſome *Spot* is diſcover'd, and *Venus*, wherein M *Burattini* hath lr ſignified from *Poland*, he has obſerv'd Inequalities, as in the Moon.

It will be worth while, to watch for the ſeeing of *Jupiter* again this Spring, that this happy Obſervation may be confirmed in divers places, and endeavours uſed to make new ones.

An Account of ſome Books, lately publiſhed.

I. *Hydroſtatical Paradoxes, made out by New Experiments (for the moſt part Phyſical, and Eaſie) by the Honourable Robert Boyle.* This Treatiſe, promiſed in *Numb.* 8. of theſe Papers, is now come forth: And was occaſioned by the peruſal of the Learned Monſieur *Paſchalls* Tract, *Of the Æquilibrium of Liquors*, and of the *Weight of the Air*: Of which two Subjects, the *latter* having been more clearly made out in *England* by Experiments, which could not be made by Monſieur *Paſchal* and others, that wanted the advantage of ſuch Engines and Inſtruments, as have here been frequently made uſe